



Submission Instructions No. GW-13

Alternate Point of Compliance Variance Submissions

Virginia DEQ - Division of Land
Protection & Revitalization
629 East Main Street, 5th Floor
Richmond, VA 23219

APPLICABILITY

This Submission Instruction (SI) is applicable to all solid waste management facilities conducting groundwater monitoring under the requirements of the Virginia Solid Waste Management Regulations (VSWMR), originally promulgated by the Virginia Waste Management Board, December 21st, 1988; as amended. These SI have been designed in a manner consistent with the regulatory language in Amendment 7 of the VSWMR, effective March 16th 2011.

The allowance to use an alternate point of compliance (APC) for groundwater monitoring at regulated solid waste landfills through the variance procedure is found under 9 VAC 20-81-250.A.3.a.(2). Virginia's allowance is sourced from Federal Subtitle D language in 40 CFR 258.40.(d). While EPA's Subtitle D rule established the criteria an APC must meet, the Federal language did not define the manner under which states approved the use of such allowance. EPA's guidance regarding use of APC may be found on pages 188-191 of its 1993 Solid Waste Disposal Facility Criteria technical manual guidance document [EPA 530-R93-017].

DEVELOPMENT

This SI has been developed to assist an owner/operator in the preparation of a groundwater APC variance. It provides an outline of the required minimum variance technical content. It is ultimately the responsibility of the Permittee to include all the data or information necessary to support each of the conclusions presented in the variance submission.

All SI are considered 'living' documents which will be updated or revised as needed. Comments or suggestions for future SI revisions can be submitted at any time to the attention of the solid waste *Groundwater Program Coordinator* at the address listed on the cover of this SI.

LIMITATIONS/DISCLAIMER

This SI has not been developed as Department rule or policy. It has not gone through public comment. SI do not supersede any regulatory requirements found in the VSWMR and their use is not mandated under the VSWMR. If used, the Department recognizes that the SI may need to be altered to fit facility-specific conditions that cannot be adequately accounted for in the boilerplate SI.

CLARIFICATION ON WHO NEEDS TO SUBMIT

Owner/operators are not required to submit an APC variance when physical obstacles prevent installation of monitoring wells at the edge of the disposal unit. In this situation, compliance wells may be installed at the closest practical distance downgradient of the unit as allowed by 9 VAC 20-81-250.A.3.a.(3). Physical

obstacles may include, but are not limited to: haul roads, storm water run-off or collection features, power lines, leachate or landfill gas conveyance lines, and engineering aspects of expansion of the unit or closure of the unit, etc. Conversely, owner/operators are required to submit an APC variance when placing or relocating a monitoring well for any other reason than a physical obstacle while meeting the requirement that the APC be located within the facility boundary, no more than 150 meters (~500 feet) from the disposal unit boundary, and positioned such that the applicant can demonstrate that there is sufficient response time (based on groundwater flow rates) to identify, remediate or otherwise contain groundwater that may become impacted by the landfill before it reaches the permitted facility boundary (9 VAC-20-81-740.A).

An owner/operator should recognize that submission of a variance request to use an APC may be premature until the proposed well has been installed and sampled. Clearly, if the sampling results do not alleviate the groundwater exceedance that originally triggered consideration of APC use, then going forward with variance submission would be unwarranted. It should also be recognized that use of APC is but one of several options available to address a groundwater exceedance. Other options include an Alternate Source Demonstration (9 VAC 20-81-250.A.5), site-specific Alternate Concentration Level use (9 VAC 20-81-250.A.6.b.(4).(b)), installation of additional wells to revise site background (9 VAC 20-81-250.A.4.d/e), and exceedance characterization (9 VAC 20-81-260.C.1.a). It is the responsibility of the owner/operator to choose the option that best fits his/her site conditions.

CLARIFICATION ON APC WELL LOCATION

As noted above, EPA established the requirement that the APC be located within the facility boundary (on land owned by the owner/operator) and no more than 150 meters (~500 feet) from the disposal unit boundary. It is not the intent of the APC process to move monitoring wells uniformly to a position of maximum allowable distance from the edge of the waste mass simply because EPA define a maximum distance. EPA noted in its 1993 subtitle D guidance that:

"If the uppermost aquifer is the sole water supply source available, all reasonable efforts should be made to locate the relevant point of compliance as close as possible to the actual waste management unit boundary."

"If the groundwater is not currently or reasonably expected to be used for drinking water, the state/tribe may allow the relevant point of compliance to be set near the 150 meter limit."

As a result, the actual distance an approvable APC well location can be set will depend on a review of the technical factors required within the variance request and described within the following sections.

TIMEFRAMES ASSOCIATED WITH SUBMISSION REVIEW

Because the VSWMR define the actions required for a groundwater exceedance (and the timing associated with those actions), any owner/operator who is considering APC use should undertake the following steps in the example timeframes discussed below to ensure, to the greatest extent possible, compliance with regulatory timeframes defined within 9 VAC 20-81-260 is maintained:

1. Within 14-days of recognizing the exceedance, notify the Department under 9 VAC 20-81-250.B.3.f.(3)(a) or C.3.e.(3)(a) of the exceedance. Within this notification, the facility should state their desire to pursue the variance and include the proposed location and depth of completion of any potential APC well(s).
2. Within 60-days of notifying the Department about the exceedance, successfully install, develop, and sample the potential APC well(s) for the Table 3.1 Column A (plus detects) constituent list.
 - a. If the sample results display landfill derived constituents at exceeding levels, then further consideration of APC use should be abandoned. The owner/operator should notify the Department within 14 days of the laboratory report issuance that APC use is being abandoned and continue with the requirements for submission of a complete Assessment of Corrective Measures (ACM) or Proposal for Presumptive Remedy (PPR) within 180-days of noting the exceedance as required by 9 VAC 20-81-260.C.1.f. In those cases where additional wells are needed to define the vertical and horizontal extent of the plume, they should be installed and sampled prior to final submission of the ACM or PPR as required by the VSWMR.
 - b. If the APC well(s) do not display exceeding constituent levels, then within 90-days of noting the exceedance, report the sampling results to the Department along with the APC variance request and associated variance fee.
3. Within 135-days of notifying the Department of the exceedance, the public advertisement of the tentative decision on the variance will be issued by the Department and public comment will be gathered for 30-days as required by the VSWMR.
 - a. Please note that the 45-day time period between variance submittal and public notice issuance requires that the Department successfully review the variance, and if items require revision, the owner/operator submit the revisions within a very quick turnaround time. If the APC

variance is not advertised by day 135, the final decision on the variance request will not be issued within 180-days of the notification of the groundwater exceedance. This would put the owner/operator in potential conflict with the requirements to submit a complete ACM or PPR within 180-days of the exceedance as required by 9 VAC 20-81-260.C.1.f. As a result, to stay within the 45-day window noted above swift actions and frequent communication will be required of both the Department and the owner/operator.

- b. In those cases where APC variance revisions are needed, but cannot be completed in a short turnaround timeframe, the owner/operator should request an extension to the ACM/PPR submission requirements as allowed under 9 VAC 20-81-260.C.1.g. in order to maintain compliance with regulatory timeframes.

- 4. Within 165-days of notifying the Department of the exceedance, the public comment period will close and any public comments received will be addressed.
- 5. Within 180-days of notifying the Department of the exceedance, a final decision on the variance request will be issued by the Department.

REQUIRED VARIANCE CONTENT

Any variance requested by an owner/operator from groundwater monitoring requirements found in 9 VAC 20-81-250 must contain the following:

- All information required under 9 VAC 20-81-760.A.1
- All information required under 9 VAC 20-81-720.A.1 & 2
- All information required under 9 VAC 20-81-740.A, B, & C
- The associated fee defined under 9 VAC 20-90-120, Table 3.1-3

Until the Department has fully implemented electronic filing in the solid waste program, complete copies of the APC variance shall be submitted to the appropriate DEQ Regional Office and DEQ's Central Office attention of the groundwater program coordinator. Once electronic filing has been fully implemented, the variance shall only be needed to be submitted to the appropriate DEQ Regional Office. If there are questions about where to submit, please contact either the regional groundwater remediation staff or the solid waste groundwater program coordinator in DEQ's Richmond, Virginia office.

For the sake of consistency and to ensure an expeditious review, the information (technical content) of the APC variance should be arranged in the order presented below. The sections discussed herein shall be considered standard

technical content. The Department also notes that there may be some site-specific instances where a facility's technical data may require additional or different information beyond that listed in these SI as a means of more fully characterizing the technical data available and conclusions derived. These instructions set no limit on the number or content of additional variance sections as long as the information included directly pertains to that required in the APC variance. If the Department finds the submission is lacking any of these items, the submission will be deemed incomplete and will undergo no further review until the missing items have been submitted.

CONTENT/FORMAT

The administrative and technical content required for each section of the APC variance is briefly described below. As further noted below, the Department recommends that the owner/operator contact the respective Regional Office prior to submitting the APC variance to ensure the Department agrees with the proposed APC well location(s) and installation depth(s) to be described in the variance. Such early contact may lessen the chance that a variance submission will face tentative denial.

Cover Page

- ***Landfill name and Permit number***
- ***Title: Alternate Point of Compliance (APC) Variance Petition***
- ***Applicant's name and address*** [760.A.1.a]
- ***Date report submitted.***

Certification Page

- ***Applicant's certification*** [760.A.1.h]

This certification must be signed by the applicant or his authorized representative and state:

"I certify that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Purpose

- ***Statement of Interest and Requested Action*** [760.A.1.b. & c]

Clearly state that the applicant is requesting approval for a variance to the location for the groundwater monitoring system or individual wells other than at the disposal unit boundary as required by 9 VAC 20-81-250.A.3 referencing 9 VAC 20-81-740.A.

- ***Description of the need and justification behind the facility's requested variance petition*** [760.A.1.d].

The applicant must give the need and justification for the variance. Most commonly the need will be a demonstration that a groundwater protection standard exceedance has occurred in close proximity to the unit boundary; however the APC is justified based on additional groundwater data which shows that the zone of impacted groundwater does not extend any great distance from the edge of waste unit, does not impact any on-site or off-site environmental receptors, and the owner/operator controls potential exposure routes.

- ***Demonstration that strict application of the regulation will result in undue hardship to the owner/operator or the alternate design (APC) will result in a facility that is equally protective of human health and the environment*** [720.A.1.a & b].

This discussion will most commonly focus on demonstrating the APC is equally protective of human health and the environment. This may be accomplished by summarizing the technical and risk basis of the petition such as:

- Groundwater is not currently used on the landfill property for potable or non-potable use within the known area of groundwater impact and the proposed distance to the requested APC well.
- Environmental receptors are not located within the known area of groundwater impact and the proposed distance to the APC
- The site hydrology supports and the proposed APC location allows for adequate response to identify and remediate or otherwise contain groundwater that may become impacted before it reaches the facility boundary.

Although the facility may also claim undue hardship as a basis, the monitoring well location variance alone does not produce a decrease in monitoring costs (or economic savings).

- ***How long the variance will be requested for*** [760.A.1.e].

Most commonly the variance will be requested for use during the remainder of the active life and post-closure care periods of the landfill.

Technical Basis for use of APC

- ***Detailed discussion of which well(s) the APC variance will be applied***

[760.A.1.c].

Most commonly this discussion will include the permitted well(s) that are being replaced and the proposed APC well(s). The facility should also include a site plan discussed under the Figures section of this document.

- ***Surveyed demonstration that the proposed alternate groundwater point of compliance monitoring well is located no further than 150 meters (~500 feet) from the edge of the waste disposal unit boundary and lies within the permitted facility boundary [740.A].***

The applicant should supply the distance of the proposed APC from the unit boundary, the facility boundary, and the nearest environmental receptor. While the VSWMR reference 500 feet as the maximum distance, the Federal regulation, which supersedes any equivalent State requirement, is 150 meters.

If the proposed APC cannot be sited within the current permitted facility boundary, the owner/operator may choose to submit a Part A revision to modify the facility boundary. If a Part A revision is needed, it should be submitted concurrently with the APC variance request. If a facility lacks a Part A, the owner/operator should refer to existing Department Part A guidance.

The one location that an APC cannot be installed at is the property boundary. EPA noted in Appendix F to the Subtitle D preamble [56 FR 51068; October 9, 1991] that:

“... the alternate boundary ... must be located on property owned by the owner/operator to prevent contamination off site.”

The Department will not approve a proposed APC well location located at a property boundary or located so close that contamination discovered in the APC will have no reasonable chance to be remediated prior to its migration off site. Based on Department records, it takes no less than 1 to 2 years to install an aggressive groundwater remediation system including extraction wells, treatment system(s), and acquire discharge permits. To account for this reality, it is advised that no APC well be proposed in a location which is less than three (3) groundwater travel-time years away from the permitted facility boundary. For facilities with extremely high or low flow rates, it may be necessary to collect additional site-specific data to calculate the flow rate rather than relying on textbook values or ranges.

To lessen the chance that a variance will contain an inappropriate proposed well location, the owner/operator should contact his/her Regional office to discuss potential well locations prior to variance submittal.

- ***Discussion of the site hydrology including groundwater flow rate and direction and estimated plume width and depth that may migrate from the unit [740.B.1 & 3].***

Most commonly the hydrology information will be based off the facility's Annual groundwater report. The plume information will need to be estimated based on the limited site data available and either simple extrapolation or simple dispersion modeling. Include/discuss the results of the APC well sampling in this section.

- ***Demonstration that the landfill derived contaminants observed in the well seeking to be replaced by the APC well will be detectable in the APC well because the APC well(s) location is demonstrably downgradient from the current well [740.B.3].***

Most commonly this information will be based off the potentiometric information submitted in the facility's Annual groundwater report. The Department will not approve an APC well location which is not demonstrably downgradient from the well being replaced. In addition, the facility should include a copy of the proposed APC well boring and construction logs and the site plan as discussed under Figures.

- ***Demonstration that the owner/operator has the practical capability to complete any required groundwater corrective actions if GPS is exceeded at the requested APC well, recognizing that the areal extent of the plume will be much larger than if GPS had been exceeded at the original compliance well [740.B.7].***

Any owner/operator who requests use of an APC to avoid the need to address groundwater impacts at the edge of the waste assumes the risk of having to remediate a much larger extent of impaired groundwater if GPS exceedances are recognized in the APC well(s) in the future. While EPA acknowledged one of the goals of using an APC was to allow for potential contaminant concentrations to:

“... diminish due to degradation, dispersion, and attenuation ...”,

there is no guarantee that this will be successful in every instance. This section requires some indication of the financial capability of the owner/operator to maintain a longer and more costly corrective action program if a much larger plume is allowed to develop. Under the current regulations, if the corrective action program is triggered, the facility is required to provide additional financial assurance in the amount of \$1 million dollars (9 VAC 20-81-260.C.1.d).

Site Risk Screen

- ***Description of the landfill design type (lined, unlined, trench fill, area fill, etc.), the type of waste accepted, and the current (or final) estimated volume of waste disposed and (if available) a discussion of the history of leachate analytical results [740.B.2].***

For owner/operators of closed unlined landfills who do not collect or sample landfill leachate, a review of available groundwater sampling data can provide an indication of the type of landfill contaminants which have entered the aquifer.

- ***Review of the available groundwater quality data on site and a review of any known alternate sources of groundwater impact in the site vicinity [740.B.6].***

In most cases, the request to utilize APC will be triggered because of recognition of groundwater impacts at the end of the waste disposal unit. For landfills located in developed areas, the owner/operator should screen available environmental databases to define whether or not there are other sources of groundwater impairment in the site vicinity that are undergoing characterization or remediation efforts.

- ***Linear distance to, and withdrawal rates of, the nearest current users of groundwater (including potable and non-potable use), regardless of their hydrologic setting with respect to the landfill property and an estimation of the groundwater travel time separation of these users from the edge of waste [740.B.4].***

When estimating groundwater travel times, the owner/operator must take into account that active withdrawal of groundwater will accelerate its lateral movement the closer it gets to the point of extraction. Failure to account for this may yield travel times much greater than actually present. The applicant should also include land use or zoning map(s) as discussed under Figures.

- ***Discussion of whether the site or any surrounding properties can be reasonably expected to be future users of groundwater for any purpose [740.B.6].***

Unless otherwise prohibited by some binding legal provision which can be demonstrated by the owner/operator which prevents its use (for potable or non-potable reasons), unrestricted groundwater use should be the default future assumption for the site and the surrounding properties regardless of the current usage. The facility should include current aerial photograph(s) as discussed under Figures showing the use of surrounding properties.

- ***The availability of alternate drinking water supplies to adjacent landowners in the event of a groundwater contamination problem [740.B.5].***

The applicant should discuss alternate water supplies available and include current public works/utilities map(s) as discussed under Figures.

- ***Distance to the nearest potentially affected surface water*** [740.C.1].

EPA defined in its Subtitle D rule that remediation of contaminated groundwater would be necessary in those instances where a landfill plume is discharging contaminants to surface water in a:

“... concentration that would exceed the groundwater protection standard ...”.

The Department will not approve of a proposed APC well location which lies within the permitted facility boundary, but lies on the opposite side of a surface water feature which represents a local discharge point for groundwater (and a contaminant plume). For sites which contain surface water, any proposed APC must be located between the landfill and the surface water body (but no more than 150 meters (~500 feet) from the edge of waste), and far enough away from the surface water feature such that there will be a reasonable chance to remediate the groundwater prior to its discharge to surface water if the APC well displays groundwater constituents which exceed GPS. The facility should also include a topographic map as discussed under Figures.

- ***Summary statement that the Department’s granting of the APC variance will not result in an unacceptable risk to human health or the environment*** [720.A.2; 760.A.1.f].

Fee

- ***Processing of the Variance requires submission of a fee as described under Table 3.1-3 of 9 VAC 20-90-120.***

Most commonly, the APC will deal with a single well. As a result, the fee associated with the variance will be the base fee (currently \$390). For sites which are proposing to move all their downgradient wells to APC, then the supplemental fee (currently \$920) will be added to the base fee because the monitoring well ‘system’ is being moved to an APC.

The fee should be submitted under separate cover to the attention of DEQ-Receipt control. A copy of the transmittal letter and the check should be included in the variance petition submitted to the Regional office and the Central office Groundwater Program Coordinator.

Figures

Figures included within the variance shall consist at a minimum of:

- a USGS 7 ½-minute topographic map showing the site location and nearest surface water.
- a site plan showing the permitted facility boundary, potentiometric surface contours and flow direction arrows, surface topography, waste disposal unit boundary, permanent structures, surface water features, a bar scale, north arrow, and the location of the APC well in relation to the existing monitoring wells.
- Well boring and construction logs of the permitted well(s) that are being replaced and the proposed APC wells. These logs must include the soils or rock encountered, the hydraulic conductivity of the geologic units encountered, the total depth of the well, the location of the screened interval, the top and bottom of the sand or gravel pack, and the top and bottom of the seal.
- current aerial photograph covering the site and surrounding properties.
- current land use or zoning map covering the site and surrounding properties with the locations of any water supply wells plotted.
- (if applicable/available) current public works/utilities map showing the location of municipal water supply lines.

VARIANCE PROCESSING

Any variance requesting use of APC will be reviewed for content completeness. Incomplete submissions will be returned for addition of the missing information as allowed under 9 VAC 20-81-760.B.1 within 7-days of receipt.

After the submission has been deemed complete, the Director will make a tentative decision to grant or deny the request. This decision will be based on the technical review of the information contained within the complete submission as well as the topics contained defined within 9 VAC 20-81-740.C. If the request is tentatively denied, the Director will offer the owner/operator the chance to withdraw the request or resubmit the request with revised information (9 VAC 20-81-760.B.3.b). If the request is not withdrawn or revised, the Director will proceed with public notification (9 VAC 20-81-760.B.3.c).

The tentative decision will be subject to a 30-day public comment period and will be advertised (see Attachment I) in a local newspaper that has circulation where the facility is located. The owner/operator shall be responsible for the cost of newspaper advertisement.

After evaluating any public comment received, the Director will issue a final decision on the variance request within 15-days of the close of the public comment period (9 VAC 20-81-760.B.3.d) by notifying the applicant and any commenting individuals. The final decision may be variance denial, variance approval as requested, or the granting of a modified or partial variance (9 VAC 20-81-720.B.1).

VARIANCE CONDITIONS

Any variance approved by the Department may be terminated upon a finding by the Director that the applicant has failed to comply with any variance requirements (9 VAC 20-81-760.C.2). In granting a variance, the Director has the authority under 9 VAC 20-81-720.B.2 to issue a variance termination date, a compliance schedule to achieve any requirements/conditions contained in the variance, and require implementation of any control measures which, in the case of APC, may include timeframes for implementation of immediate interim measures (as allowed under 9 VAC 20-81-260.F.2 & 3) in case GPS are exceeded in the APC well(s) (see Attachment II).

ATTACHMENT I – Boilerplate Public Notice Language

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on the proposal to utilize an alternate ground water point of compliance at the below described solid waste landfill issued a permit from the Department of Environmental Quality.

PUBLIC COMMENT PERIOD: (Month) (Day) 2012 to (Month) (Day) 2012

PERMIT NUMBER: XXXX

FACILITY NAME AND LOCATION: The applicant landfill, located in the County of XXXX is located at XXXXXX. The landfill is located on the XXXXX, Virginia, USGS 7 ½-minute topographic quadrangle map.

DESCRIPTION: The landfill has asked the DEQ for a variance to locate one or more of its groundwater monitoring wells somewhere other than at the edge of the waste mass as is normally required by the solid waste regulations. The applicant has demonstrated that moving the location of the monitoring well(s) further away from the edge of the waste mass will not result in an unreasonable risk to public health or the environment and will result in facility design that is equally protective of human health and the environment. If approved, this variance will allow the facility to locate MX-xx(a) XXX feet from the edge of waste.

HOW TO COMMENT: DEQ accepts comments by e-mail, fax or postal mail. All comments must include the name, address and telephone number of the person commenting and be received by DEQ within the 30-day comment period. The public may review all related variance petition documents at the DEQ Regional office named below.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION: (name); Groundwater Remediation Specialist, (regional location) Office; Phone: (xxx) xxx-xxxx; Email:xxxx@deq.virginia.gov; Fax: (xxx) xxx-xxxx.

Attachment II – Boilerplate APC Variance Language**Variance to the Virginia Solid Waste Management Regulations**
Use of Groundwater Alternate Point of Compliance (APC)

In response to a variance request (9 VAC 20-81-740), submitted by XXXX for its solid waste landfill, Permit number XXXX, the Director hereby grants approval of the request limited to the conditions below. If any of the conditions below are violated, consistent with 9 VAC 20-81-760.C.2, the variance approval shall be immediately terminated.

1] The approval is for the relocation of MW-xx approximately XXX downgradient from the edge of the disposal unit. The new well shall be identified as MW-xx(apc). The former compliance well shall be maintained on site as a piezometer and groundwater elevation measurements shall be obtained during each subsequent groundwater sampling event.

[At subD landfills use this language as well => The former compliance well shall be sampled during each compliance event for the associated Table 3.1 sampling list and the results shall be reported to the Department with the rest of the facility's routine sampling actions. However, no groundwater program decisions will be made based on data from this former compliance well. All decisions will instead be made from the results of the APC well.]

2] Relocation of any other compliance well not mentioned in this approval will require the submittal and review of a separate variance petition.

3] If the APC well exceeds groundwater protection standards (GPS) at any point in the future, the Permittee shall follow the actions normally required to address the exceedance under 9 VAC 20-81-260 within the timeframes defined in the VSWMR.

4] For any APC well that is located within 100 feet of the permitted facility boundary or an environmental receptor such as surface water, which subsequently is found to exceed GPS during groundwater monitoring, the Permittee shall within 30-days of noting the exceedance, provide a Plan for interim measures (9 VAC 20-81-260.F) to the Director in addition to following the actions required under 9 VAC 20-81-260.C.

5] If an Interim Measures work-plan is not submitted by the owner/operator within 30-days, the Director, using authority under 9 VAC 20-81-260.F.2, shall notify the Permittee of the Interim Measures which shall be required to prevent offsite plume migration or impact to on site ecologic receptors.

APPROVED: _____
Name, Title

DATE: _____